

Pediatric Hospital Inpatient Use in Rhode Island, 1990 - 2002

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Nationally, the past three decades have shown a decrease in the number of pediatric hospital discharges and corresponding days of care. Rates of discharges have declined from 66.8 per 1,000 population in 1970 to 39.4 in 2000¹. Reasons for the decline may include a decrease in underlying rates of disease and injury among children as well as an increase in the use of outpatient care for certain conditions. Reporting of hospital discharge data in Rhode Island allows the analysis of statewide trends of pediatric hospitalizations from 1990 to the present with comparisons to national trends and patterns.

Methods. Acute-care general hospitals in Rhode Island have been reporting patient-level data for every patient discharged since October 1, 1989 as required by licensure regulations. As of October 1, 1998, Rhode Island's two psychiatric specialty hospitals and one inpatient rehabilitation facility began reporting patient-level data. The data reported includes demographics and clinical data coded to the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)². This analysis examines trends in pediatric inpatient discharges, defined as ages 0–14 years at the time of admission. Newborn infants are excluded from this analysis, and patients admitted and discharged on the same day are counted as having used one day of inpatient care.

Results. In 2002, there were 7,448 pediatric inpatient discharges from non-Federal acute-care general hospitals and three specialty hospitals in Rhode Island, comprising 46,340 days of care with an average length of stay of 6.2 days (3.9 days for the acute-care general hospitals). Pediatric discharges accounted for 5.9% of the total of 126,317 inpatient discharges (excluding newborns) in 2002, with more male (56.3%) than female (43.7%) hospitalizations. Of the 691,167 days of care used in 2002, pediatric discharges accounted for 6.7%.

Rates of discharge for ages 0–14 years have declined during the 1990's in Rhode Island's acute-care general hospitals from 41.8 per 1,000 population in 1990 to 29.7 in 2000, with the greatest decreases seen between 1995 and 2000. (Figure 1) The rate of pediatric inpatient discharges for all hospitals, including the two psychiatric hospitals, one of which is a pediatric facility, and the rehabilitation hospital, fell from 37.8 per 1,000 population in 1999 to 34.4 in 2000, then rose to 37.6 in 2002.

The discharge rate varied with age within the pediatric age group during 2002, with the highest utilization occurring among those under one year of age. (Figure 2) Of the 7,448 pediatric discharges in Rhode Island in 2002, 2,264 (30.4%) were infants under one year of age. The hospitalization rate for infants was 187.9 per 1,000, more than five times the next highest rate (ages 1–4 years, 35.6). Rates for ages 5–9 years and ages 10–14 years, 23.3 and 26.9, respectively, were lower than the rate for ages 1–4 years. For each of the three youngest age groups, the discharge rate for males was higher than the

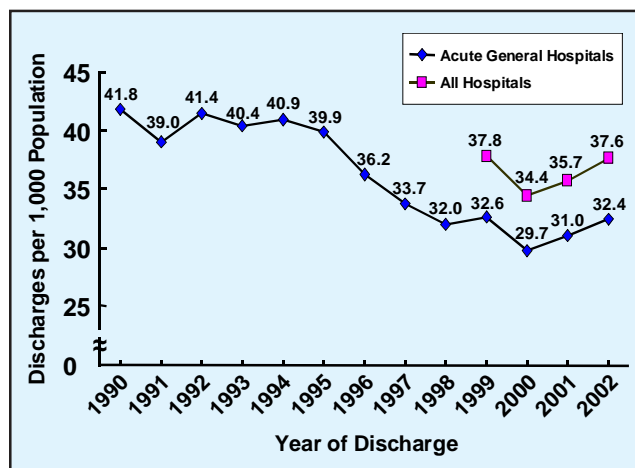


Figure 1. Hospital discharges per 1,000 population, ages 0–14 years, Rhode Island, 1990–2002

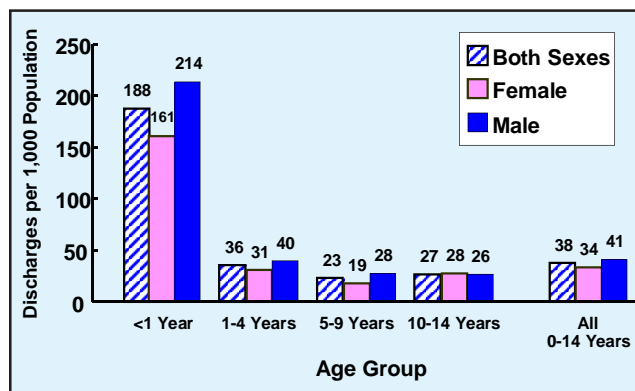


Figure 2. Hospital discharges per 1,000 population by age group and sex, Rhode Island, 2002

rate for females; for those ages 10–14 years, the female rate slightly exceeded the male rate.

In 2000, the rate of pediatric hospitalizations in Rhode Island (34.4 per 1,000 population)² was substantially lower than nationally (39.4) and regionally (Northeast, 44.0)¹. (Figure 3) Although Rhode Island's rate of discharge was lower for ages 0–14 years, the utilization rate (days of care used) in Rhode Island was greater than the rates for both the United States and the Northeast. The rates were 249.5 per 1,000 population for Rhode Island, 177.4 for the United States and 236.8 for the Northeast. The average length of stay was significantly higher in the Rhode Island at 7.2 days than for the United States and the Northeast, 4.5 days and 5.4 days, respectively.

Rhode Island Hospital, by far, treated the largest proportion of pediatric hospitalizations in 2002, with nearly three-fourths (71.8%) of the total pediatric discharges in the state. The next largest percentage of discharges was treated by the six hospitals with pediatric and/or perinatal services [Kent County, Memorial, Newport, South County, Westerly and Women and Infants

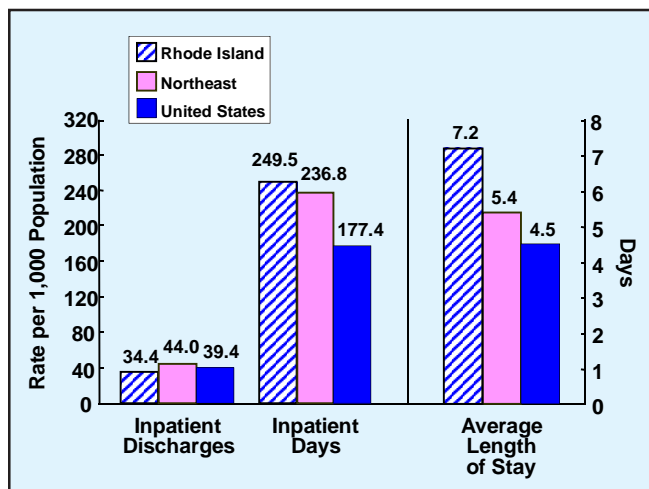


Figure 3. Hospital discharges and days per 1,000 population and average length of stay, ages 0 – 14 years, Rhode Island, Northeast, and United States, 2000

Hospitals], with a total 14.1% of the state’s pediatric discharges. These six hospitals saw only slightly more pediatric patients than the two psychiatric specialty hospitals combined (13.9% of discharges). Four hospitals without either pediatric or perinatal services [Landmark, Miriam, Roger Williams and St. Joseph Health Services] together treated only 0.2% of all discharges ages 0 – 14 years. The rehabilitation facility did not treat any pediatric patients in 2002.

For pediatric hospitalizations in 2002, the most common first-listed diagnosis group was diseases of the respiratory system, accounting for 22.9% of all discharges. (Table 1) Mental disorders comprised the second largest category with 14.8% of pediatric discharges. Injury and poisoning (9.0%), diseases of the digestive system (7.1%), and endocrine, nutritional and metabolic diseases and immunity disorders (6.1%) were the next largest diagnosis categories. All other diagnosis groups contained less than six percent of pediatric discharges. Complications of pregnancy, childbirth, and the puerperium and diseases of the circulatory system were the smallest diagnosis categories (0.3% and 1.0%, respectively) and are included in the “Other” category.

Discussion. Hospitalizations of children and infants, age 0 – 14 years, comprise small and decreasing proportions of the total inpatient discharges and inpatient days in Rhode Island hospitals. Among this population, the largest proportion of inpatient care is

Table 1.
Hospital discharges by first-listed diagnosis,
ages 0 - 14 years, Rhode Island, 2002

First-Listed Diagnosis	Percentage
Diseases of the respiratory system	22.9%
Mental disorders	14.8%
Injury and poisoning	9.0%
Diseases of the digestive system	7.1%
Endocrine, nutritional, and metabolic diseases and immunity disorders	6.1%
Conditions originating in the perinatal period	5.8%
Symptoms, signs, and ill-defined conditions	5.7%
Infectious and parasitic diseases	4.5%
Congenital anomalies	3.9%
Diseases of the genitourinary system	3.7%
Supplementary classifications	3.7%
Other category	12.2%
Missing/Unknown	0.6%
Total	100.0%

for infants under one year of age, and the large majority of care is provided at a single hospital among those offering pediatric or perinatal services.

Compared to other parts of the nation, Rhode Island’s pattern of pediatric inpatient utilization is characterized by lower discharge rates and longer average length of stay, the latter apparently driven by the utilization of psychiatric facilities. Over time, the rate of pediatric hospitalizations locally has risen since 2000, after a decade-long trend toward lower utilization. These findings merit additional investigation. In particular, the relatively large proportions of pediatric discharges relating to diagnoses of mental disorder in Rhode Island should be a focus of continuing study.

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